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ABSTRACT

If they are to develop more effective social intervention strategies, social scientists must pay attention to social causality in their research. This will lead to more credibility for the social sciences and more support for research funds. Social causality is defined as a social process that produces a change in some dependent variable. It reflects a social mechanism rather than a physical one. There are many reasons why the social sciences have not paid much attention to the problem of causality--e.g., the sheer number of causal mechanisms, the confusion between causal modeling and causal processes, and the size of the social system. Appropriate methodological procedures for studying causality include studies across time and the random assignment of causal mechanisms. (RM)

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THE CONCEPT OF SOCIAL CAUSALITY

AND

THE USEFULNESS OF THE SOCIAL SCIENCES

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Introduction

Recently the social sciences have been attacked as being irrelevant or worth less research funds than the physical sciences because there is less payoff. While some of this attack is ideological and deals with a preference that certain topics--love, mental health, school integration--not be studied, we must also admit that some of the attack is justified. The justification stems from our recent failures. Frequently social science research has studied problems and then made policy recommendations without fully understanding the causal mechanisms involved. The consequence is misguided programs that are then ineffective. Their ineffectiveness then rebounds back to social science research, discrediting it. And even in the areas where social science research has developed some causal models as econoomics, society has changed so much that previous causal mechanisms are now overwhelmed by new ones. Perhaps the most dramatic example of this is stagflation; instead of inflation disappearing with high unemployment it is now possible to have both high unemployment and high inflation.

The purpose of this paper is to define and focus attention on the concept of social causality. The first section of the paper defines what is social causality while the second section makes clear how it differs from both explanation and prediction and from "causal models" as discussed in various statistical techniques. While these ideas overlap, they are not isomorphic.

Social Causality

There are a variety of reasons why social causality has not been the focus of our research and theoretical effects. These are explicated in the third section of the paper while the fourth suggests how we must change our methodological and theoretical approachs so that social causality becomes an explicit focus.

Why should we be so concerned with the problem of causality? The answer is that only if we know what are the mechanisms by which one state variable changes another state variable are we likely to develop better social intervention policies.

One problem in the social sciences, which makes them quite different from the experimental physical sciences, is that there are many potential causal mechanisms connecting the variables that are normally looked at. Social causality does not operate as simply as heat transfer, which has only three mechanisms, or even as simply as biological interchanges in the body, which are even more complex. The consequence is that frequently the social scientist looks at some state or system variable like social integration, complexity, or political development, without trying really to grasp which of many causal mechanisms are operative in a given context.

The Definition of Social Causality

The definition of social causality is a social process that produces a change in some dependent variable. It reflects a social mechanism rather than a physical one. The process can be quite long and involved.

An example is in order. Suppose we walk into a room and perceive a person holding a smoking gun and another person lying on the floor. We observe two state variables and make a causal inference that the change in one variable, the firing of the gun, caused a change in another variable,

the person lying on the floor. This is a relatively simple causal process because it is a physical one. But it illustrates what is very common in all the sciences; we observe two events, which we will call state variables that we assume are part of the same system. We do not observe the actual causal process that is the trajectory of the bullet or even the firing of the gun.

Now let us move to micro economics and its application to economic policy. We observe as did Phillips in his research that at least in the past, two state variables appear to be related: level of inflation and level of unemployment. As the latter increases the former declines until at some point deflation occurs. Again the causal processes are not observed although in this case they could be clearly spelled out and have been. There are many of them. To study all of them is quite difficult. Clearly econometric forecasting models--an elaborate form of path analysis--have moved a long way towards trying to specify some of these. It is the complexity of their models that stands in sharp contrast to many of those in the other social sciences. And yet even with this complexity, they have been having difficulty in making accurate predictions. This does not necessarily mean that their previous understanding of the causal processes is wrong but only to say it was incomplete. New causal processes may now be occurring, or certain ones that existed previously may have become more important. All this is to say that even when causal processes are understood, the sweep of historical time can change the situation and alter the relative importance of some factors or add new ones.

What is the relationship between a social process and a causal mechanism? We have used these terms interchangeably. In sociology most variables that

are studied are either system or state variables or else status characteristics and most typically do not refer to the social processes involved. The social process can be conceived of a series of events that connect two state variables. In large societies, these processes may unfold over very long historical periods of a century or more. At the individual level they may occur extremely rapidly. What we mean by a causal mechanism then is a social process that can be shown to from a change in one state variable to a change in another state variable. However, many of the names of various social processes used in sociology are too general largely to convey what we mean by social process qua causal mechanism. Socialization, social change, and social conflict are not specific references that could be used to develop social intervention policies.

Examples of Social Causality

In organizational research there is a large literature that indicates that complexity and decentralization are positively related. What is frequently left out are the social processes that connect and relate these two system variables. Among other causal mechanisms the following are probably operative:

1. Specialists are highly trained and because of this they demand a share in decision-making.
2. Specialists who are trained have learned good communications that allow them to argue more effectively.
3. Specialists will find ways of circumventing the chain of command, developing influence over decisions.
4. Specialists will band together to produce a change in the distribution of power even if conflict is necessary.
5. As the chain of command is circumvented, power is decentralized.
6. Specialists can withhold information that will result in embarrassment for their superiors in the chain of command and lead them to make wrong decisions.

7. Top executives do not know everything and will consult and ask advice from knowledgeable experts in areas in which they are less knowledgeable, increasing the power of the expert.

8. Confronted with a coalition against them, top executives are more likely to share some power in decision-making.

9. When top executives make mistakes, and especially costly ones, their errors are likely to make them ore open to seeking advice and sharing decision-making.

There are probably many others operating. But what the example makes clear is that the causal mechanism indicates the way in which one system variable produces a change in another system variable.

Several observations can be made from this example. First, any two state variables are connected by a large number of causal mechanisms. Second, these mechanisms unfold over time. And third, for this reason they frequently are difficult to research. Finally fourth, they exist on several different analytical levels with references to individuals and groups, attitudes and behavior.

When status characteristics are interrelated many of the same problems exist. For example we know that father's education is related to son's education. The question is how many of the following mechanisms are operative:

1. The higher the father's education the more likely either the father or the mother or both is to set high standards for the son and insist upon behavioral compliance. If the parents are upwardly mobile, the more likely this is to be true.

2. The higher the father's education, the more likely it is that the father or the mother reads at home and the son duplicates this behavior.

3. The higher the father's education, the more one or the other parent will take more time to help the son with problems in school so that the son achieves better.

4. The higher the father's education and the more capable the parents are to help, the more likely one or both parents interact with the son and the greater the verbal stimulation, which leads to higher school performance.

5. The higher the interaction with father the more likely the son will adopt the father as a role model.

6. The higher the education, the more the father will seek out good schools and the less error in choice will be made.

7. The higher the education, the higher the income and the more the parents can afford special private schools, tutors, educative toys, and other factors that will stimulate the son's interest and success.

8. The higher the education of the father the more likely he is to marry an educated women who will have more verbal skills, higher aspirations, and more willingness to help son if he does not achieve one, reenforcing the father.

9. The higher the education, the more likely the parents are to interact with other people and the more likely these people are to be educated, which leads to more educated role models for the son and reinforces aspiration levels and successful school behavior.

10. When the parents choose good schools, the teachers are likely to be more well educated and be better teachers thus capable of helping poorer students do better.

11. Better schools are likely to have lower student teacher ratios, which means the teachers can spend more time with students not doing well. Also the more likely students are to choose some teacher as a role model.

12. Better schools are likely to have a greater variety of subjects, better equipment, counselling services, and other enrichment factors that can affect a student's interest and motivation.

13. Better schools will be filled with students that have higher motivation, which will offer a student's motivation provided they are of similar background.

14. Better schools will attract better students so that students learn more from their peer group in and out of the classroom, again assuming similar social background.

15. Teachers in better schools are likely to set higher aspirative levels for the students and insist that they do better. Teaching is more likely to be geared to achieving well on standardized tests.

Again, we will not continue with all of the many complex social processes involved in the process of socialization. We have largely ignored group processes--both pro and anti school, which were a part of the original Coleman report and have formed part of Cloward and Ohlin's analysis of adolescent gangs. Nor have we built in the familial processes including divorce and its impact. But we have clearly--we think--indicated the complexity of the problem.

Again some observations are worth making. As in the first example, there are many mechanisms which unfold over time and are difficult to research. In addition, social interventions not designed to speak to all of these are likely to fail. And for this reason the study of status characteristics such as religion, race, ethnicity, and even gender--the main stays of much sociological work--are extremely vulnerable to misplaced policy recommendations.

Social intervention can be misguided because one mechanism is assumed to be present when another may actually be operative. Much of the controversey over school busing has beneath it different causal mechanisms about what makes for social integration and for school achievement. Either of these goals involves many social processes that mirror the complexity of sociology itself. Probably both can not be achieved at the same time. Within each goal, it was easy to make a mistake and focus on only one causal mechanism. We might call this the fallacy of the misplaced cause. It has plagued many social science action programs that have been developed in the last ten years. At the same time it is also important to recognize that some social action programs have been successful because they have identified at least one important causal mechanism. Head start is built on the assumption that early verbal stimulation will improve school performance. This interaction has been demonstrated to work. However, we would argue that there are many complex processes involved. If more

of these could be identified and if they could be built into the program, head start could then be more successful. And this is another critical point. By now knowing or identifying all of the social processes involved, we reduce the effectiveness of our intervention strategies considerably even if we have identified one of the mechanisms.

With these examples, we can begin to indicate what are the differences between explanation, prediction, statistical analysis, and causal laws. It should be clear from this example that the causal mechanisms are neither explanation or prediction but something quite different. Explanation is a covering law at a more abstract level which may or may not imply some causal process. For example in the first illustration, complexity and decentralization can be deduced from the axiom that social groups strive for consistency of rank. This implies at least one causal mechanism, namely number 1 above, but it does not include the other The axiom suggests a motivatonal assumption at the group rather than the individual level, but does not indicate the behavioral processes by which increasing complexity could lead to greater decentralization of strategic decision-making. Causal processes may involve various constructs such as group motivations that can not be adequately measured and at the same time be necessary for understanding a chain of events.

In the second illustration some path models have looked at the role of peer aspirations. As should be clear there are many other causal mechanisms involved in the translation of father's education into son's education besides this. By leaving these other mechanisms out, there is little appreciation of the true complexity involved. Thus it is apparent that path models even when they are called causal models are not necessarily this. They may reflect one of the mechanisms involved but are likely to

miss many others. In this regard, econometric forecasting models have found that successful predi-tion is not necessarily a function of a number of variables and equations. Leontief (1982) has recently critized his fellow economists for adding more and more variables and more and more complex mathematical formulations but not adding more and more understanding about what are the causal mechanisms involved. Indeed, now even their predictions are declining in value. And this leads to a basic insight, path models when they do not adequately reflect the causal mechanisms or social processes are not made better by adding more variables unless these begin to reflect some of the causal processes involved. There is a difference between the number of state variables and the number of causal mechanisms.

If the social sciences are to gain greater creditability then they must focus more of their attention on the causal mechanisms that are involved. As we noted in the beginning one of the really distinctive characteristics of the social sciences is that there are many more causal processes involved. This means that we have always incomplete explanation and usually poor prediction as well when we attempt to focus on a single causal law such as Bayles' Law or the laws of motion. These single causal laws work well when the causal mechanisms are simple and regular. The phemonology of the social sciences is clearly different.

Causality vs Explanation, Prediction, and Statistical Analysis

Many people assume that causal analysis implies determinism. We have used the term mechanism, which probably bothers many social scientists. Yet, this is an incorrect interreptation. We are concerned primarily with probalistic statements. Probalistic statements are necessary for several reasons. There are a very large number of causal processes involved and each of these occurs in different proportions, which can change across time.

This does not mean that we can not strive to be a science but only to recognize that in the social sciences the relationships between explanation, prediction, and causality are more complicated. From these examples then it is apparent that causality is not explanation although the higher order law could represent some causal process or law. Usually, however, more than one is involved in any situation. Nor is causality prediction, although one or more social process might be modeled. But again since many state variables are connected by multiple social processes, it is seldom the case that prediction is likely to be extremely high with only one causal mechanism is modeled.

Logically as the level of prediction becomes higher and higher, the problem of a single vs. multiple social process is of less an import until we are concerned with social intervention. Then which mechanism is operative might be critical. This had led in the literature to a discussion of which variables can one control.

Nor is causality prediction. One could obtain quite good predictions by knowing the level of complexity without knowing the reasons why the variable produces change in the level of centralization. Father's education is correlated with son's education. Now if in fact the variables were themselves the causal mechanisms this prediction and causality would be closer together. But since our correlation coefficients usually are not exceptionally high, we cannot assume that we know what the social processes are.

Why do the Social Sciences Not Focus on Causality

There are many reasons why the social sciences have not paid much attention to the problem of causality. And many of these reasons are good ones, some of which have already been mentioned. They are worth listing because they make apparent the obstacles that must be overcome before we can readdress our attention to this issue.

1. The sheer number of causal mechanism. In both of our two illustrations we have seen at minimum there are at least ten.

This is precisely why certain kinds of system variables or status characteristics are preferred in social science research, they are much easier to measure. If the number of mechanisms were fewer, then the problem would not be there and one could more easily infer the causal mechanisms. This has allowed physics and chemistry to proceed but has made the task of biology more difficult.

2. The confusion between causal modelling as in a path diagram and causal processes. This point was made above and need not be dealt with. Again if only a few causal processes are involved there would be little difficulty. The complexity of social science phenomenon prevents this simple one to one relationship from occurring.

It simplifies the task to focus on some predictive variable such as a state variable. Status characteristic such as black, father's education, or jew even are easy to measure. Unfortunately they have led to incorrect conceptualization and the lack of development of theory (hage, 1972: Chapter One). The state variables are the observables and therefore the first to be noticed and measured.

3. The size of the social system. As we move from micro analysis and the study of individuals to macro analysis and the study of the world, we move from systems with many more state variables and with each connected by many causal mechanisms. To make matters even more complex is that as the units become larger and larger, the length of time for some causal processes can be as much as a century. Again the sheer magnitude of the research problem encourages the avoidance of studying the causal processes.
4. Our theoretical models and empirical methodologies tend to ignore social causality. Most theory construction efforts do not allow for the very complex causal processes that are involved. Simarily many of our methodologies ignore time or social processes and therefore mitigrate against the "finding" of causal mechanisms, a point to which we know is true.

Appropriate Methodological Procedures for Studying Causality

The Need for Studies Across Time

If we are concerned with studying the trajectory of the bullet, the social processes, that cause one state variable to change another it means that we must invest much more into longitudinal research designs than we have previously. There are a wife variety of them but so far they have not been used much. Panel studies, interrepted time series, pooled time series, experiments with controls, and comparative historical case studies all represent avenues for increased attention to the causal mechanisms involved.

We suspect however, that these methodologies would be far more successful if the researchers developed before hand a list of possible causal mechanisms. Simply building on time does not necessarily automatically mean that the causal mechanisms will be discovered. We must search for them and attempt to measure them.

The Need for Random Assignment of Causal Mechanisms

Rather than use the term treatment, we think the language of experimentation needs to be changed to the random assignment of causal mechanisms. problem in the social sciences is that with so many causal mechanisms, it is hard to study them one by one under experimental conditions and gradually build up the entire social process that is involved. Again the word treatment or program implies much. It should be decomposed into its constitent parts so that causal mechanisms are clearly the focus.

Conclusions

The major reason for why causality is so important is the need to develop better and effective social intervention strategies that focus on social processes. In turn this will lead to more credibility for the social sciences and more support for research funds from the larger public.

Effective social policies are not the only reason for focusing on causality. Another is the development of non-academic career lines for sociologists. As is demonstrated, then a variety of uses can be found, which will lead to more job opportunities. For example, it the causal mechanisms in various treatment programs could be found and verified, then there would be a large number of research jobs available to study their improvement and perfection over time. We have seen this occur in medical research.

By knowing what are causal mechanisms that are operative, it might be possible to change some dependent variable without necessarily involving the change in the independent variable. For example, suppose we are interested in increasing the level of educational achievement and aspiration among school children who come from low education families. Depending upon which social processes are operative, different intervention strategies would be called for. Among others, lowering the student-teacher ratio, placing the best teachers in the neighborhood where parents have low educational achievement, and so forth. Each of these needs to be studied carefully across time in experimental or quasi-experimental conditions. Only after a series of studies can effective policies be suggested.

One might assume that we have raised an impossible task. We do not believe so. It proved fairly easy to identify a number of causal mechanisms. The research questions and strategies for looking at them are clear. Instead the problem is the necessity of understanding the necessity of looking at social causality if we are to survive.